Cisco Expo 2008

Create Public Value Through Broadband

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Predicting the Future is Difficult

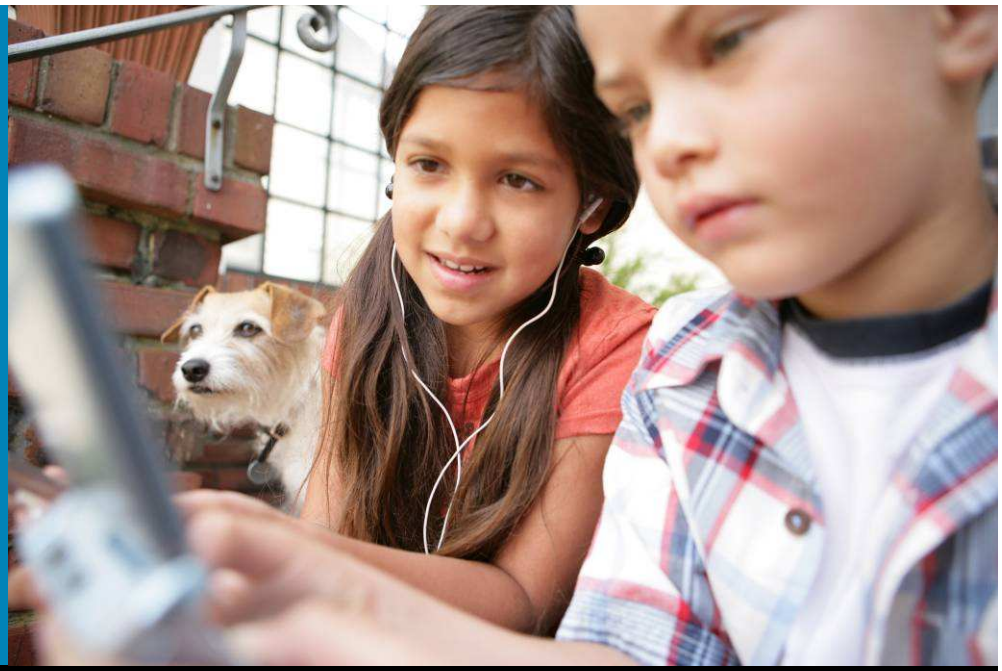
- "Prediction is very difficult, especially about the future." Niels Bohr, Nobel Laureate
- "There is no reason anyone would want a computer in their home." Ken Olson, founder of Digital Equipment Corporation
- "Who wants to hear actors talk?" H.M. Warner, cofounder of Warner Brothers, 1927
- "The wireless music box [radio] has no imaginable commercial value." Said to David Sarnoff, founder of NBC
- "This 'telephone'... is inherently of no value to us." Western Union memo, 1876

What is Broadband?

European Commission Definition:

Broadband refers to a wide range of technologies that have been developed to support the delivery of innovative interactive services, equipped with an always-on functionality, providing local bandwidth and capacity that evolves over time, and allowing the simultaneous use of both voice, video and data services.

Source: eEurope 2005



The Service Provider Perspective

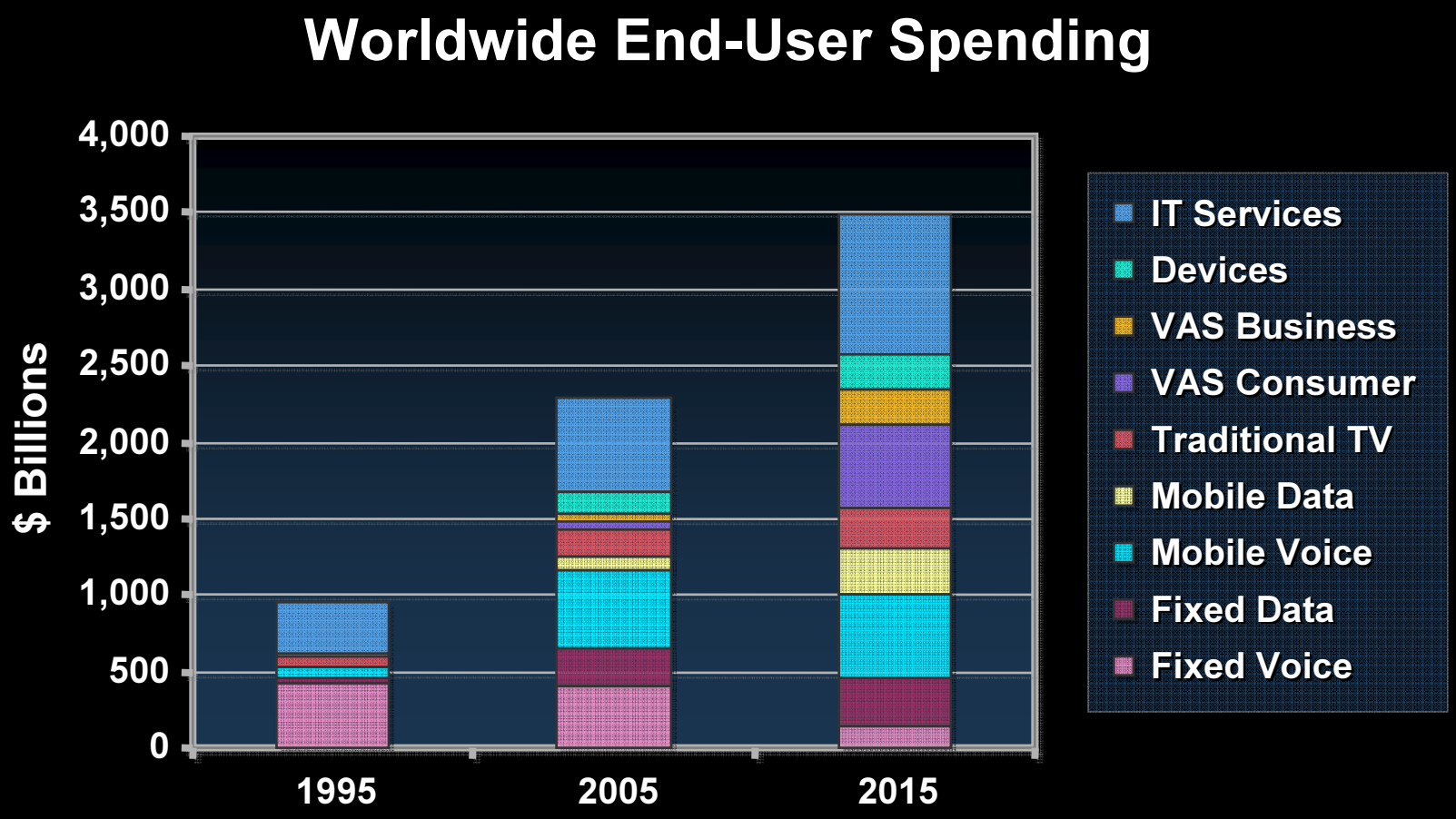
*** See also notes**

“Readiness” Is Improving

From 1995	To 2010
70M Internet Users	1.8 B Internet Users
1M Broadband Subscribers	500M Broadband Subscribers
200M Mobile Subscribers	2.3B Mobile Subscribers
50 PB/Month IP Traffic	8 EB/Month IP Traffic
$22B Spend in E-Commerce	$800B Spend in E-Commerce

Sources: Ovum, Gartner, Jupiter, PWC, e-Marketer, JP Morgan, Cisco IBSG Analysis

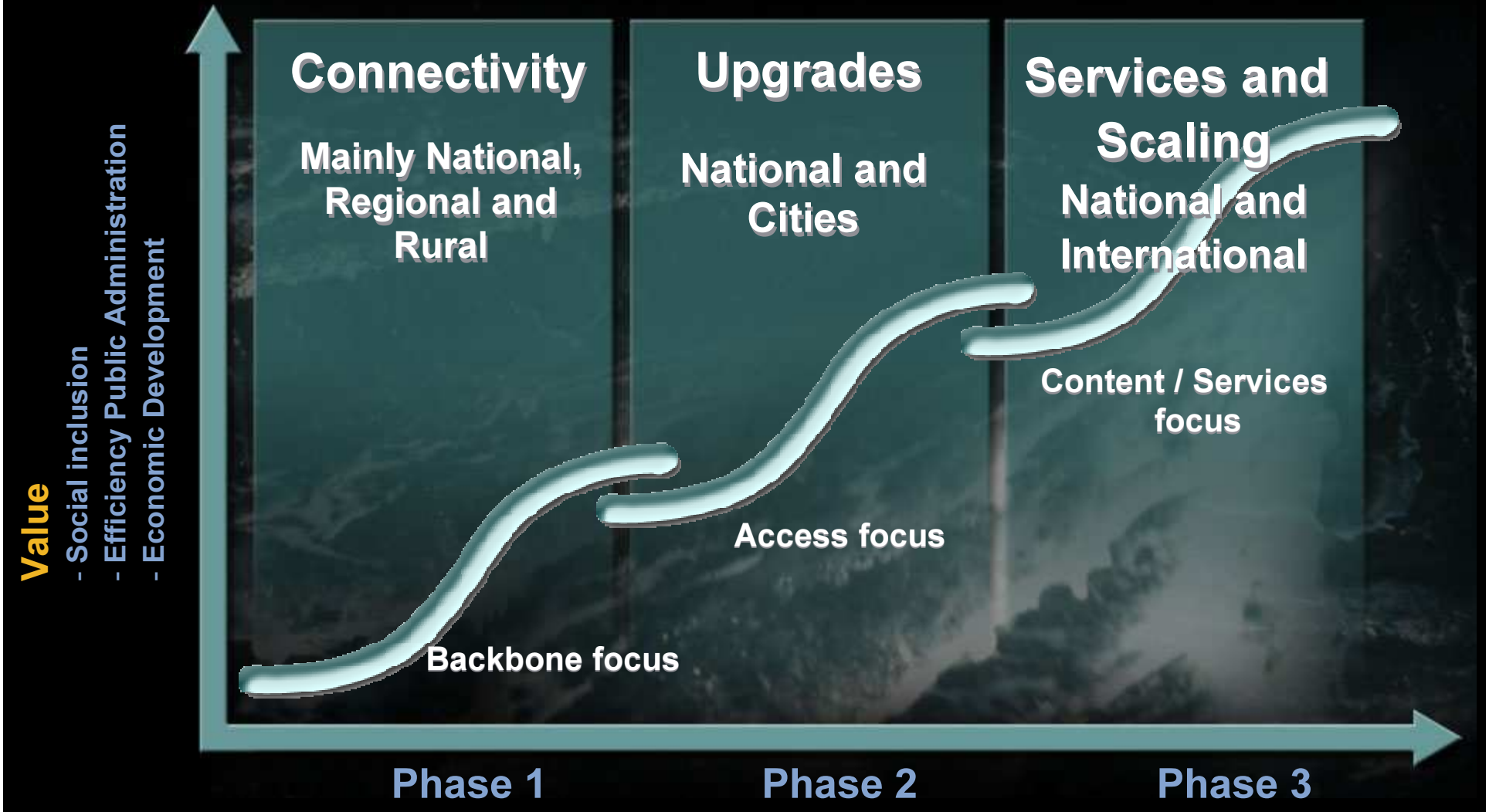
Growth and Value Migration



Source: Cisco IBSG Analysis, March 2006; Ovum, January, August 2005; Gartner Dataquest, September 2000 - December 2005; PWC, June 2005; JP Morgan, January 2006; Infonetics, November 2005; In-Stat STB Forecast, January, June 2006

The Public Sector Perspective

Broadband Government: Evolution



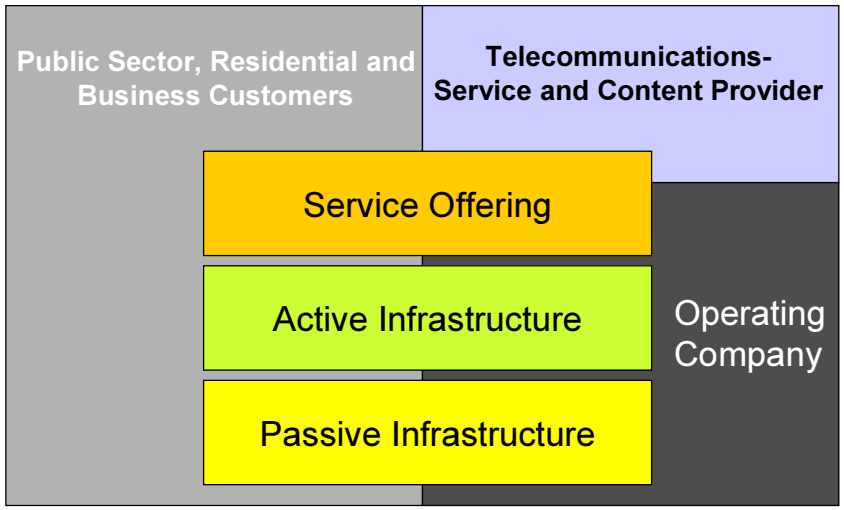
Trend: Public Sector and Broadband

Players involved in FTTH Segmentation June 2005		
Incumbents	9	7,8%
Municipalities / Power Utilities	78	67,2%
Alternative operators / ISPs	13	11,2%
Housing companies & Other	16	13,8%

Source: IDATE study / FTTH Council Europe

Generic Broadband Business Model

The Broadband City 2010 main concept building blocks



Source: The Broadband City Roadmap for Local Government Executives, Cisco Systems, Internet Business Solutions Group, Jan 2005

Next Generation Broadband
7 Key Learnings

1. The policy debate has to evolve into a more complex discussion about the relationship between infrastructure, the quality of connectedness between people and within communities and new applications and services.
2. People don't access infrastructure. They access, and in most cases pay for, services they value.
3. Connecting people and businesses and communities with fast, secure and increasingly robust communications networks is turning out to be a key to rising service quality, community strengthening and new opportunities for economic growth and resilience.

Next Generation Broadband
7 Key Learnings (continued)

4. Avoid building "single use/service" networks, e.g. voice or Internet only, or single service provider solutions. The new networks must support multiple service types and multiple service providers.
5. It is difficult to deliver the indispensable attributes of robust networking – security, resilience, quality of service etc – if they haven't been factored into the design of the networks from the start.
6. It is vital that multiple communications service providers can use the common access infrastructure to compete in the provision of telecommunications services.
7. The focus now is as much on applications and services as it does on the design and delivery of better connectivity.

Broadband Government
Cisco's Thought Leadership

Cisco Sponsorship

FTTH Council Europe

Broadband Cities 2006

eLeaders Forum

Broadband Government Think Tank

Connected Series

Cities

Health

Schools

Homes

Republic

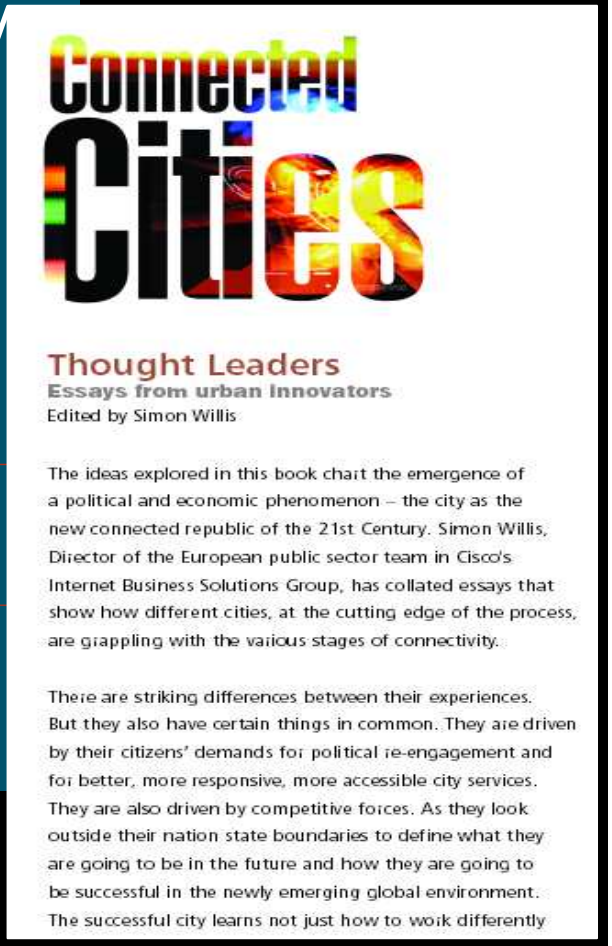
Government

Broadband City

2010

2010

Broadband City
A Roadmap for Local Government Executives



*** See also notes**

CITYNET

Public Orchestrated Open Access Broadband Model

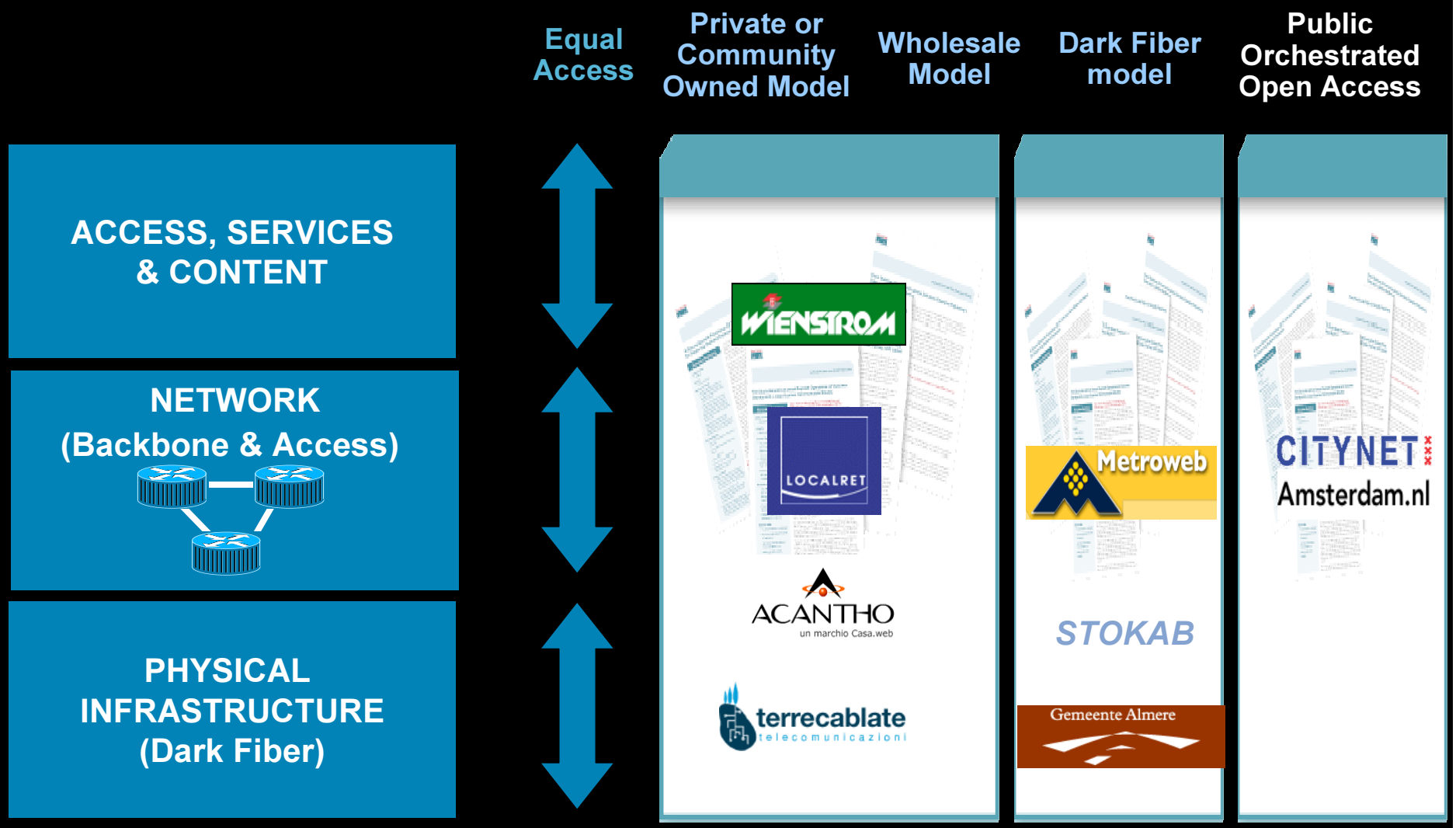
* See also notes

CITYNET

" ... a big step towards the deployment of a citywide fiber-to-the-home network. This enables our city to compete with other European cities. In this way we ensure a wide open marketplace for innovative services and economic growth, as well as a fast track for the smarter and cheaper delivery of care, education and other public services."

Mark van der Horst
Alderman of Economic Affairs, ICT & Infrastructure
City of Amsterdam

Alternative Broadband Business Models



Source: Cisco IBSG

Legend Arrow: One or Multiple Players Per Layer

Public Orchestrated Open Access Model Characteristics (generic)

- A next generation broadband infrastructure
- Equal and open access
- Organized by public communities
- Public ownership (or public private) of the physical broadband infrastructure (passive layer)
- One independent network operator
- Wholesale services on a fair and non-discriminatory basis
- Competition and innovation at the services layer
- Limit financial risk public sector by minority share public private partnership

Citynet
Market Drivers

- Foster sustained economic and social benefits
- Provide True Broadband – Invest in a high quality future proof communication infrastructure (is a public interest)
- Bridge The Digital Divide
- Breaking through existing vertical integrated business model
- Open access for all service providers
- Enable freedom of choice for citizens and businesses
- Stimulate innovation & knowledge economy

Citynet Roadmap

- **2002: Study of a Next Generation Broadband Network**
  - Study of future proof network: Value & Benefits
  - Interviews with incumbents
- **2003: Study of a Public Private Partnership**
  - Study of public private partnership (passive layer) with a minority position of the Municipality: Possibilities & Opportunities
- **2004: European tenders**
  - One party for building the physical infrastructure
  - One party for operating the network
  - Multiple parties to provide services, applications and content
- **2005: "On Track With Broadband"**
  - Dutch Government issues guidelines (non binding) for community broadband to local, regional government and housing corporations, partly based on the Citynet project
- **2006: Start first phase: 40.000 homes by 2008 at €30m**

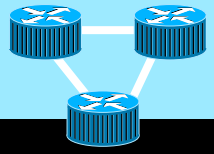
Citynet
Fibre-to-the-Home is becoming a reality

- **FTTx reality in Europe (Source: Idate June 2005)**
  - 650.000 FTTx subcribers
  - 2.5m homes passed
- **CityNet: Major FTTH project in Europe**
  - 420.000 homes and businesses by 2013
  - Cost: €300m (€714 per connection)
- **Shift Market Order – Culture Clash**
  - From vertical integrated triple-play services to open-access network multi-play services
- **Regulatory Problems Unlikely**
  - European Commissions focuses on stimulating competitiveness
  - 32 European countries => deployment independent fiber-optic networks to boost economic development and social inclusion

Citynet
Public Orchestrated Open Access Model

ACCESS, SERVICES AND CONTENT

NETWORK (Backbone and Access)



PHYSICAL INFRASTRUCTURE (Dark Fiber)

Multiple Content & Service Providers

BBned (Telecom Italia)

Glasvezelnet (Fibernet) Amsterdam BV

5 Housing Corporations (33,3 %)

Municipality Amsterdam (33,3 %)

ING Real Estate (33,3 %)

Citynet Rationale

- Innovative and freely accessible infrastructure
- Support growth in demand next 30 years and beyond
- Open marketplace for innovative service providers
- Increase economic development
- Fast track for smarter & cheaper care, education and other public services
- Encourages content creation and more exchange of information
- Bypass of three major issues
  - Continued demand for faster broadband connectivity
  - The bottleneck in the local loop
  - Overcoming short-term view of current infrastructure owners to invest in network upgrades

Citynet
Regulatory & Competition Framework

- Amsterdam City Council very careful to abide Market Economy Investors Principle: Citynet is No State Aid!
- Risk/Reward acceptable for all shareholders involved
- Permission for housing corporations to invest in new infrastructure by Dutch Ministry of Public Housing
- The network will be operated using the ‘open network’ principles
  - SP’s purchase transport on non-discriminatory conditions
  - Telco’s can use the network to offer their own services

Citynet
Do The Financials Stack Up?

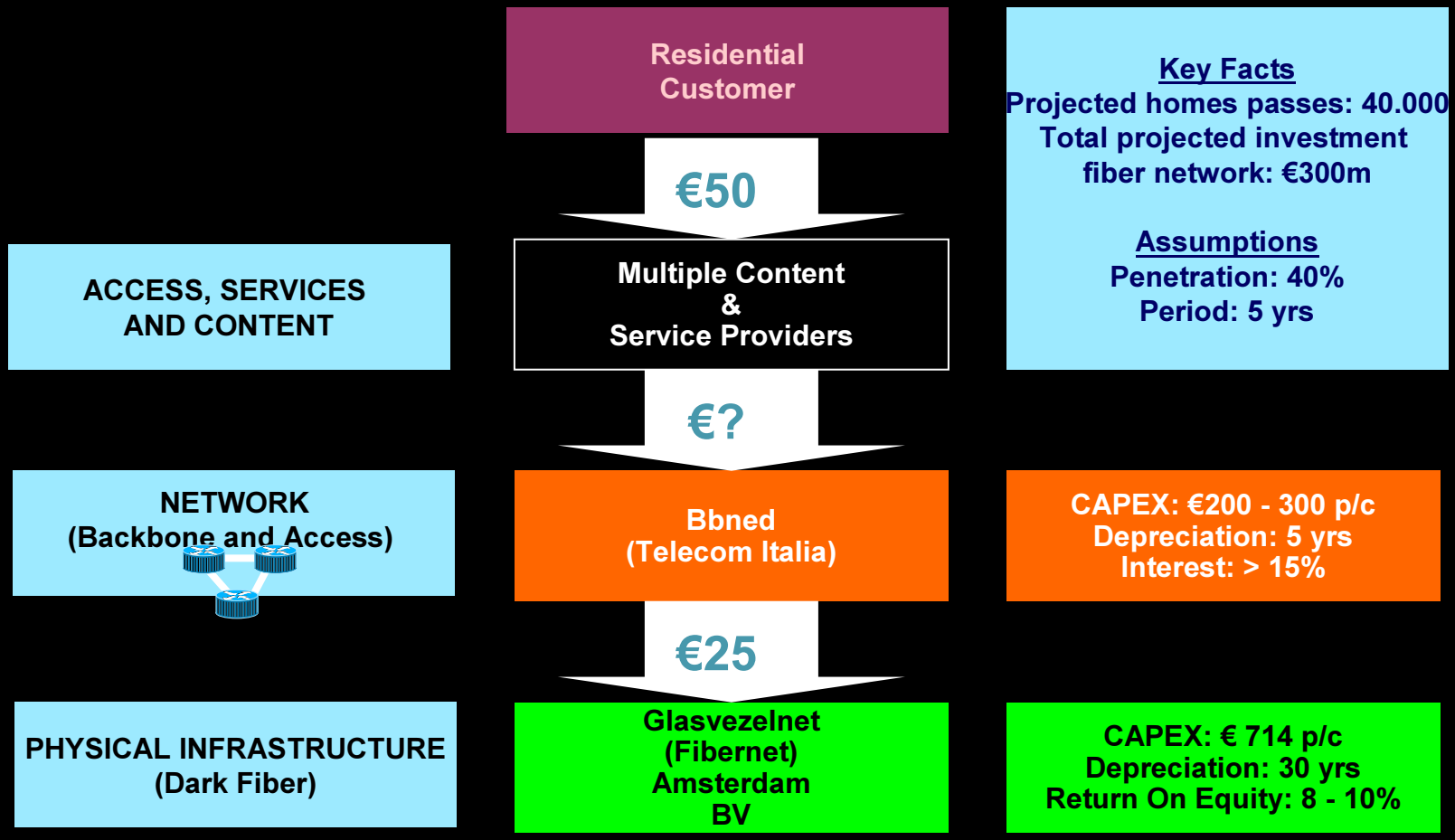
Key determinants viability investment

- Long term view stakeholders
- Fiber investment is akin to real estate
- Estimated return on equity: 8 – 10%

Key drivers of the value

- Subscriber take-up (penetration)
- Revenue generated per subscriber (ARPU)
- Churn

Citynet
Pricing & Investment Model



Q and A